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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/564,704	01/13/2006	Hye-Young Park	11281-091-999	1710
20583	7590	02/26/2007		
JONES DAY 222 EAST 41ST ST NEW YORK, NY 10017			EXAMINER SONG, SARAH U	
			ART UNIT 2874	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		02/26/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/564,704	<b>Applicant(s)</b> PARK ET AL.	
	<b>Examiner</b> Sarah Song	<b>Art Unit</b> 2874	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 and 12-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 12-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. **Claims 1, 2, 26 and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Matsuo et al (U.S. Patent Application Publication 2003/0152347).**

3. Regarding claims 1, 2, 26 and 27, Matsuo et al. discloses a single-mode optical fiber, transmission line and transmission system suitable for a WDM (Wavelength Division Multiplexing) system, comprising: (a) a first core region 1 positioned in the center of cross section and having a radius  $r_1$  from the center and a relative refractive index difference  $\Delta_1$ ; (b) a second core region 2 surrounding the first core region and having a radius  $r_2$  from the center and a relative refractive index difference  $\Delta_2$ ; (c) a third core region 3 surrounding the second core region and having a radius  $r_3$  from the center and a relative refractive index difference  $\Delta_3$ ; and (d) a clad region 5 surrounding the third core region and having a radius  $r_4$  from the center and a relative refractive index difference  $\Delta_4$ , (e) wherein the radii of the regions have a relation of  $r_1 < r_2 < r_3 < r_4$ , and the relative refractive index differences of the regions have relations of  $\Delta_1 > \Delta_2$ , and  $\Delta_2 < \Delta_3$ ; (here,  $\Delta_1(\%) = [(n_1 - n_c)/n_c] \times 100$ ,  $\Delta_2(\%) = [(n_2 - n_c)/n_c] \times 100$ ,  $\Delta_3(\%) = [(n_3 - n_c)/n_c] \times 100$ ,  $n_1$ : a refractive index of the first core region,  $n_2$ : a refractive index of the second core region,  $n_3$ : a

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refractive index of the third core region,  $n_c$ : a refractive index of the clad region) (f) wherein the optical fiber uses a wavelength region from 1460 to 1625 nm, and has a dispersion value of 0.1 to 3.0 ps/nm-km at 1460 nm, 3.0 to 5.5 ps/nm-km at 1550 nm, and 4.5 to 8.0 ps/nm-km at 1625 nm. The fiber has a positive dispersion slope. See Table 2, Sample 4.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 3-5, 12-25 and 28-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuo et al.**

6. Regarding claims 3-5, 18-24 and 28-37, Matsuo et al. discloses the claimed fiber as discussed above with regard to claim 1, including an effective area of  $46.65 \mu\text{m}^2$  at 1550 nm, a cutoff wavelength of 1344 nm, a zero dispersion wavelength less than 1460 nm, dispersion of 5.02 ps/nm/km at 1550 nm and 6.57 ps/nm/km at 1625 nm. Matsuo et al. further discloses a dispersion slope less than 0.04 ps/nm<sup>2</sup>/km or less ( $\leq 0.04$ ), an effective area (which appears to be applicable to the entire wavelength band) ranging from  $35 \mu\text{m}^2$  to  $60 \mu\text{m}^2$ .

7. Although Matsuo et al. does not expressly disclose the claimed ranges, Matsuo et al. discloses ranges that overlap Applicant's claimed range. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. Similarly, a prima facie case of obviousness exists where the claimed ranges and prior art ranges

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do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. See MPEP 2144.05(I).

8. Regarding claims 12-17, Matsuo et al. does not expressly disclose the claimed ranges for the respective radii and relative refractive index differences. However, in the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a prima facie case of obviousness exists. Similarly, a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. See MPEP 2144.05(I).

9. Regarding claims 25, 38 and 39, Matsuo et al. does not expressly disclose the bending loss at 1625 nm under the condition of a bending radius of 30 mm, 100turns. However, it is well known in the art to keep bending losses to a minimum to maintain optimal transmission characteristics. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to minimize the bending losses at 1625 nm for the purposes of maintaining optimal transmission characteristics across the wavelength band of interest.

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 6,819,847 is the published patent of Matsuo et al. relied upon above.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later


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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarah Song whose telephone number is 571-272-2359. The examiner can normally be reached on M-Th 7:30am - 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on 571-272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Sarah Song  
Primary Examiner  
Art Unit 2874